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ABSTRACT

Sentences are understood by outlining associative relations between the concepts representing the meanings of the words. When the words are received the activation spreads from their conceptual counterparts to the other concepts in memory, so that some implicit thoughts are often added to the mental representation of a sentence. As sentences are presented in a text the associative relations between the sentences ought to be taken into account. Implicit relations are inferred by the aid of spreading activation, which means that neither the number nor the exact content of all the associative relations is known. Because the capacity of active memory is limited, some selection must take place so that only the most essential things are kept in mind during reading. Teenagers often encounter difficulties when trying to pick out the most essential associations amongst all the alternatives. The solution to this problem is to help in text understanding by channeling the selection. A classification system was developed to categorize the different types of associations and the definitions were then transformed into questions. In a trial experiment pupils discussed student-written summaries on expository newspaper texts and used the questions for criticism. If this technique is applied repeatedly to several texts with different content, it is probable that the students will learn to learn. (A list of meaning relations and a figure are included, and 19 references are appended.) (MS)

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HOW TO AID TEENAGERS TO UNDERSTAND EXPOSITORY PROSE?

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Sentences are understood by outlining associative relations between the words, or rather between the concepts representing the meanings of the words. When the words are received the activation spreads from their conceptual counterparts to the other concepts in memory, so that some implicit thoughts are often added to the mental representation of a sentence. As we do not know which concepts and relations are activated in semantic memory, the final form of the representation is obscure. When sentences are presented in a text, in addition to the understanding of each sentence, the associative relations between the sentences ought to be taken into account. Some of these intersentential relations are made explicit by using connectors and other verbal means, whereas some of them are left implicit. The implicit relations are inferred by the aid of spreading activation. As a result, neither the number nor the exact content of all the associative relations, which form the mental representation of a text, is known. Anyhow it is sure that there is a huge amount of associations which are active during text processing. As the capacity of active memory is limited, some selection must take place so that only the most essential things are kept in mind during reading. Young pupils and teenagers often encounter difficulties when trying to pick out the most essential associations amongst all the alternatives. My solution to this problem is that text understanding can be aided by channelling the selection.

In order to use the quality of association as a criterion for selection, a classification system, the categories of which will be outlined, was developed for recognizing the different types of association. For teaching purposes, I transformed the definitions of the associations into questions and collected them together. The utilization of these questions in classroom teaching are discussed in the light of the first experiments.

Comprehensive reading is an interactive process in which the reader has to reconstruct the meaning from the text. In addition to the reconstruction of the meaning, the reader has the responsibility for monitoring his or her thinking to ensure understanding. Due to the complexity of this process, several complementary instructional techniques are needed to improve both comprehension and monitoring of comprehension. It has been shown that learning from texts might be improved by several different methods: focusing on topic related questions while reading (Anderson & Biddle 1975), identifying the structure of a text by writing hierarchical summaries (Taylor 1982), constructing semantic maps (Berkowitz 1986), using a cloze strategy

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by which students have to integrate prior knowledge with text information (Dewitz et al 1987), metacognitive discussions about principles that underlie comprehension (Brown et al 1981), inference training in which students have to explain why a particular characteristic is essential for an actor to perform his task (Franks et al 1982), and by making students guess, prior to reading, what would happen in the text (Hansen & Pearson 1983). In this paper some theoretic considerations about the process of comprehensive reading are outlined, and based on these considerations, a new instruction method is introduced. The first experiences on the use of this method are also discussed.

In order to promote the understanding of texts we should first know how they are understood. As texts consist of sentences, it might be reasonable to start to consider how sentences are understood. At first the conceptual counterparts of the words ought to be activated in memory. Secondly, the associative relations between the words or concepts ought to be outlined by the aid of syntactic and semantic cues in sentences. Thirdly, the implicit thoughts included in the meaning of sentences ought to be inferred. As we do not always know what implicit associations or inferences are included in the meaning of sentences, the final form of the internal representation of a sentence is obscure, and it may differ amongst people.

When sentences are presented in a text, in addition to the semantic relations which are included in the sentences, the intersentential relations ought to be taken into account. Some of these relations are made explicit by the aid of connectors and other verbal means, whereas some of them must be inferred.

Here is an example of a text, where the surface form is correct. Each sentence makes sense, and the connectors between sentences are appropriate. However, this text is nonsense, because the inferences which are made when the sentences are understood, do not fit together. Thus there is implicit conflict at the intersentential level.

"I took the fast train from London to Glasgow. My wife came to Victoria Station to see me off. When we were on our way there, I forced her to tell me where Aino lived. Almost immediately after departure I went into the dining car and sat there a couple of hours. When I came back to my seat, my wife started her usual nagging about my drinking. After the train had arrived and stopped, I stepped onto the platform. Since I didn't know Aino's address I decided to go for a walk to Piccadilly Circus." (Laurinen 1985, p. 50).

As this example illustrates, there is a huge amount of meaning relations which are active during text processing. Some of those relations are explicitly mentioned in the text, whereas some are not. As the size of working memory is limited, some selection must be made among the meaning relations. In other words, somehow we must know what is important and worth maintaining in active memory and at the same time knowing what to look for when reading the text further (see van Dijk & Kintsch 1983).

But in order to select, we must have some selection criteria. This means that some tool is needed by which essential meaning relations could be extracted from the text. It has become evident however, that the essentiality of a proposition cannot be defined directly on the bases of textual properties. For example, Kintsch's idea to deduce macro propositions merely from the textual properties has not been successful (see Kintsch 1976). Why should we rely on verbal signals, when we all have general knowledge in our memory about how things are and how events usually proceed (see Schank 1982).

My solution was to make the selection on the bases of the content and quality of meaning relations. For this purpose, I picked up different types of meaning relations from psychological theories of semantic memory (Collins & Quillian 1969, Norman, Rumelhart et al. 1975, Collins 1977), from the story grammars (Rumelhart 1975, Kintsch 1976), from the theory of Knowledge Structures (Schank & Abelson 1977), and from expository texts with varying content. Each type of associative relation is illustrated by an example. In these examples associations are formed either about the concept, electronic game, or the proposition, Timo bought an electronic game. In every example the same concept or proposition was used as another member of associative relation in order to avoid overlap between categories.

ASSOCIATIVE RELATIONS DEFINING, SPECIFYING, OR RESTRICTING THE MEANING OF CONCEPT X

1. ARGUMENTS, i.e. the parts or properties or the meaning constituents of X.
 - The parts of an electronic game are the case, the screen, and the buttons. The screen consists of an area for moveable objects and another for scores.
2. FUNCTIONS, i.e. how X itself works, or how it can be used.
 - An electronic game is for play. By pressing buttons it is possible to control the movement of some object or objects on the screen.
3. APPEARANCE FORMS or TYPE EXAMPLES. Some combinations of the values which are contained in the arguments of X, or some functions of X; prototypes, optimal cases, and cases characteristic of a certain situation.
 - There are different types of electronic games, for example, models with one screen, models with two screens, wide screen models which can be placed on a table, and pocket models which are held in the hand when played with.
4. SUPERORDINATE or SUBORDINATE CONCEPTS. The subordinate concepts can be CASE EXAMPLES of X.
 - Electronic games belong to the supercategory of games or toys. One case example of electronic games is the parachute in which skydivers come parachuting down over sharkinfested waters. A lifeboat tries to catch them.
5. COMPARISONS or DIFFERENTIATIONS between X and some other concepts; what properties X has in common with the other concepts, and how X differs from other concepts.
 - In an ordinary game the players control the course of the game, whereas in electronic games a microprocessor keeps control and counts the scores.

ASSOCIATIVE RELATIONS ILLUSTRATING THE CHARACTER OF CONCEPT X

6. DESCRIPTIONS, i.e. some additional properties by which the nature or character of X can be illustrated.
 - Electronic games are "chirp mills".
7. EMOTIONS, ATTITUDES, VALUES and BELIEFS which X may evoke or which are considered in connection with X.
 - Children like electronic games. Some adults believe that they improve children's intelligence, whereas others think that they are brain washing machines.
8. ANALOGIES illustrating X with the aid of some other phenomenon.
 - Bread and circus entertainment - tea and brass band - potato chips and electronic games.

ASSOCIATIVE RELATIONS CONCERNING THE USE OR FUNCTION OF CONCEPT X

9. CONTEXTS where X appears or takes part or where X is used.
 - Electronic games are sold in some toy shops and department stores.
 - Electronic games are used in experiments when developing a theory of intrinsically motivating instruction (see Malone 1981).
10. MEASUREMENT METHODS, how the values of the arguments of X or how the quantity or quality of the functions of X can be evaluated or measured.
 - The popularity of different electronic games can be compared by asking children to rate each game on a four point scale: 0-never played, 1-didn't like it, 2-liked, 3-liked a lot.
 - The durability of electronic games can be measured by counting how many times they can be dropped on the floor before they break.
11. INSTRUCTIONS, how to use X.
 - Try to catch skydivers in a Parachute game. Move boat left or right by pressing corresponding control buttons.
 - Insert two LR4 batteries into the battery compartment with the positive electrode on top.
12. NORMS which regulate the use of X.
 - Bringing electronic games to school is forbidden.

CAUSAL RELATIONS CONCERNING THE ACTUALIZATION OF PROPOSITION X

13. EFFECTS or EFFECTING FACTORS which influence the realization of proposition X.
 - When Timo saw children playing eagerly with their electronic games, he too decided to buy one for himself.
14. GOALS and INTENTIONS
 - Timo bought an electronic game because he wanted to join those children who swap games.
15. PREREQUISITIES, OBSTRUCTIONS, or PROBLEMS
 - Timo was not able to buy an electronic game because he had not got enough money.

16. RESULTS or SOLUTIONS

- Timo got more money by selling his stamp collection, so he could afford to buy an electronic game (solution).
- After Timo bought an electronic game, he finally got to play with it for as long as he wanted (result).

17. SIDE-EFFECTS or FRINGE PHENOMENA

- On the day Timo bought an electronic game, he forgot to do his homework.

TEMPORAL RELATIONS CONCERNING THE REALIZATION OF PROPOSITION X

18. TEMPORAL CHANGES

- Electronic games were still uncommon in Finland in 1982. But the following year almost every child had got at least one. Timo bought one for himself, too.

19. TEMPORAL SUCCESSION

- After Timo had bought an electronic game, he went home.

How exhaustive this classification is, and how reliably different persons can label the interconnections between propositions, is still an open question. Anyhow this classification has proved useful when developing methods to measure the understanding of essential information from expository texts (Laurinen 1984). When searching and labelling the associative relations of a text the order of importance between propositions becomes visible. At the top there are usually those propositions which are either causally or definitionally related to the topic concept or topic proposition of the text. The other propositions are then related to the higher level propositions either directly or through one or more interconnecting propositions.

After the classification of associative relations was made and used as a basis of semantic analysis of expository text, the following problem arose: how this knowledge should be presented to ordinary school pupils. The solution was the scheme in Figure 1. In this scheme the original definitions are transformed into questions, so that pupils would search for answers to them from different expository texts.

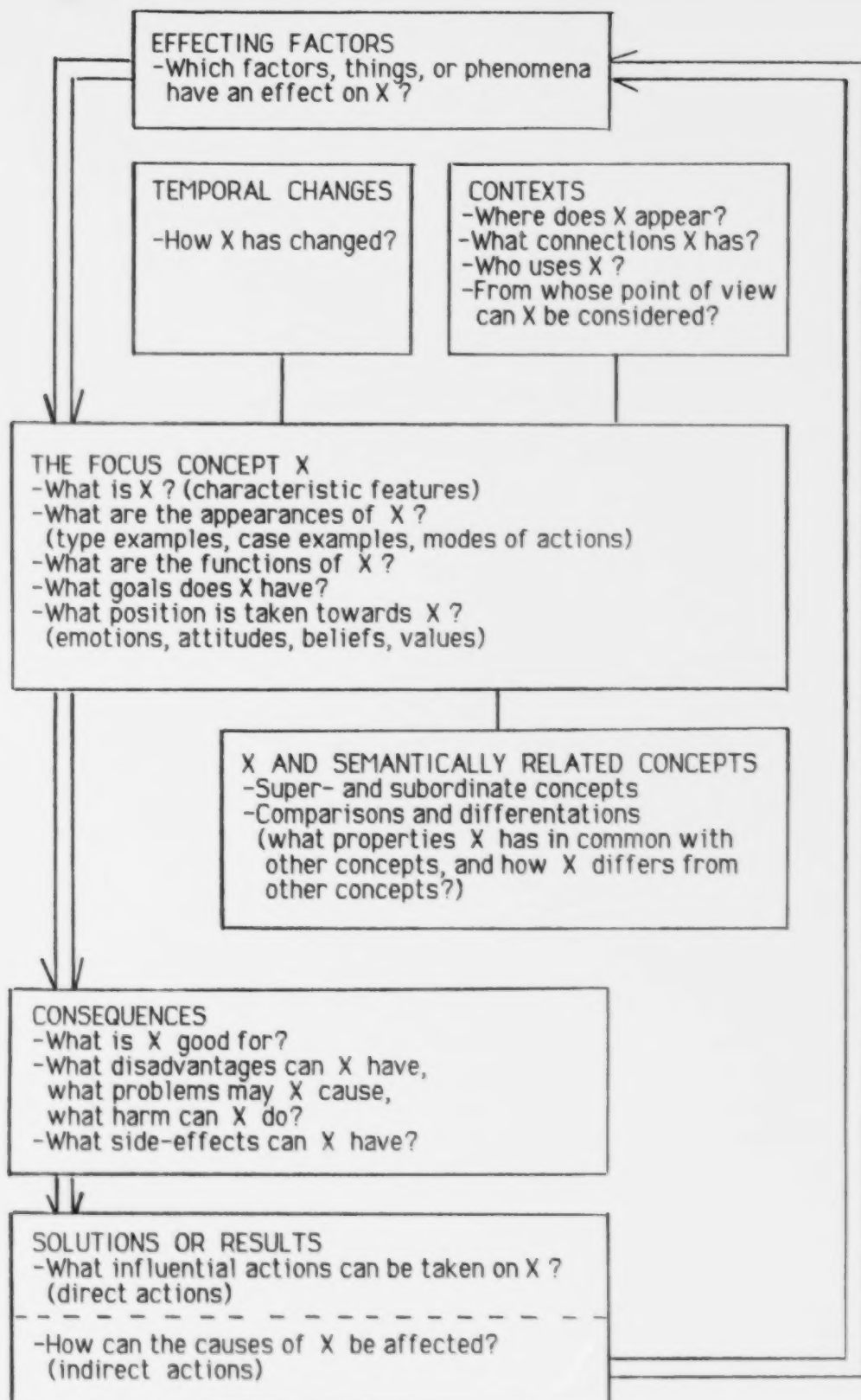


Figure 1. Associative relations of expository texts.

When reading the scheme it is better to start at the middle from the questions concerning the definitions of X (The Focus Concept X). The arrows of the scheme indicate the causal relations between the effecting factors of X, X itself, the consequences of X and the solutions or results which can be addressed to X. The solutions are divided into direct and indirect actions. If for example X is criminality, one direct action which could be taken against it, is to increase police forces. Indirect actions for example could be attempts to increase education and social welfare in areas with high criminality. As all relations in expository texts are not causal in nature, the scheme includes associative relations for describing temporal changes and for considering X from different points of view (contexts). X can also be described by comparing and contrasting it with other concepts which are semantically related to it.

Since the associative relations of the text are not dependent on the surface form of the text, and since the degree of essentiality cannot be deduced from the order of the sentences presented, the questions help pupils to take the position of an outside observer. This way they can reach the concrete reality which has been in the mind of the author when the text was written. It is well known that poor readers are very dependent on the surface form of the text and cannot get rid of it, whereas good readers are able to relate the text to their earlier world knowledge.

Applications

Process writing

The first trial to utilize the scheme in classroom teaching was an experimentation of process writing (Laurinen & Kauppinen 1986). We asked pupils to write a summary about one expository newspaper text and also to comment on it. The topic of the text was neo-naziism. After writing their summaries small groups of pupils were asked to criticize the summaries of their classmates. The pupils were asked to criticize on the basis of the scheme. The groups were selected so that each group consisted of one good, one average and one poor writer. After the criticisms the pupils were then asked to improve their summaries. When comparing the different groups, this practice was particularly beneficial to the poor writers.

Both the average and good writers were also seen to benefit from the use of the scheme. Here are two examples of comments made by one average and one good writer in the first two stages of writing

COMMENTS:

Pupil A (average writer):

- 1) I think that the aims of neo-nazis are right. Everybody has the right to believe what he wants to believe.
- 2) Everybody should have the right to keep his own principles, however, the way neo-nazis do it, cannot be accepted. Violence is a poor way, because violence breeds more violence.

Pupil B (good writer):

- 1) The flow of emigrants should be controlled so that the juveniles of their own country will get enough work.
- 2) In order to prevent the increase of neo-naziism, it is wise to increase employment and education. This way, the reasons for dissatisfaction are removed.

Teaching discussion

During the experiments of teaching discussions (Laurinen & Kauppinen 1986) pupils were asked to discuss the text in pairs with the aid of the scheme. Here is an example of the final discussion which took place at the end of the lesson.

Teacher: What are the temporal changes, or how has neo-naziism been changed?

Pupil A: Earlier only the Jews were persecuted, nowadays it's all foreigners.

Pupil B: This is not to say how neo-naziism has changed, but in this answer the differentiation between neo-naziism and naziism is in question.

Pupil B was right. According to the newspaper text, the change of neo-naziism was that the movement has got more followers plus more international contacts.

This example illustrates that it is easy to speak with pupils about the precise content of the text, when we have exact concepts to use.

Planning how to write

Pupils in small groups were asked to discuss one of the following concepts. Their task was to answer the questions which are presented in the scheme.

Fast (to go without food)

Depression

Suicides

Terrorism,

Marriage

Finnish welfare.

After the discussion they wrote an essay on one of the following subjects:

Would it be wise to start a fast

Depression, the disease of our time

Why so many people commit a suicide

Is marriage needed?

The prerequisites of Finnish welfare.

The idea was to get the pupils to first go through the thought process before starting to write. According to the teacher, the advantage of the scheme lies in that that it is independent of the rhetoric structure of the text. Pupils got a chance to consider rather freely the possible associative relations of the concept in focus. In this way the process of writing went on naturally: First it is good to consider what to say. Rhetorical and grammatical rules of written texts are needed only when pupils start writing.

Discussion

The first experiences of the use of the scheme in classroom situations have all proven to be positive. There has been only two setbacks. The first was one student who refused to answer the questions in the scheme. Before writing the text he preferred to make a certain kind of rhetoric outline, which he had earlier been taught at school. As a result he wrote a fluent text, the content of which was, however, far below the level of the other students in the class. The second setback has been the preconceived attitude of some teachers that the scheme is too complicated for their pupils. However, I have had a similar response from all teachers who, despite their suspicions, have taken the scheme into use: "After my first doubts I saw my students really working and at the end of the lesson some pupils asked for more exercises of this kind!"

Up to now, there has been a lack of research comparing this method with others aimed at improving learning from texts. This method, however, has some common features with others which have earlier proved to be useful. The scheme of associative relations can be seen as a kind of semantic map. According to the results of Berkowitz (1986) some students with poor school achievement are not able to construct semantic maps. For this reason the method of semantic mapping did not work for them; neither did the map-study method help the students because they had not self constructed the map. In the method instructed here, the poor learners need not construct the scheme but the task is to fit the new situation into the scheme. For this reason the scheme-study method can never be a passive learning method like the map-study method.

The scheme consists of questions, which students are asked to answer. In this respect the method resembles the question-answering method (e.g Taylor 1982). These two methods differ in that the questions in the scheme are not made directly from the text to be learned, but they are based on the human way of building associations between things in general. The task of the learner is not only to answer the questions but also to consider whether the questions are appropriate for the particular situation or text which is being encountered.

The use of the scheme has resemblances with metacognitive discussions and inference training methods, too. In the research by Franks et al (1982) the poor learners learnt to generate reasons why a particular type of actor was performing the stated activity. Although it is inevitable that these kinds of inferences are crucial in text understanding, the learners might also need practice with other kinds of inferences. The questions in the scheme are planned to serve this purpose. The scheme itself represents metacognitive thinking, i. e. the way people learn to construct associative relations between things when they learn. If the scheme is applied repeatedly to several texts with different content, it is probable that the students will learn to learn.

References

- ANDERSON, R. C. & BIDDLE, W. B. (1975) On Asking People Questions About What They Are Reading, in G. Bower (Ed.) *The Psychology of Learning and Motivation (vol. 9)* New York: Academic Press.
- BERKOWITZ, S. J. (1986) Effects of Instruction in Text Organization on Sixth-Grade Students' Memory for Expository Reading. *Reading Research Quarterly*, 21, 161-178.
- BROWN, A. L., CAMPIONE, J. C. & DAY, J. D. (1981) Learning to Learn: On Training Students to Learn from Texts. *Educational Researcher*, 10, 14-21.
- COLLINS, A. (1977) Processes in Acquiring Knowledge. In R. C. Anderson & R. J. Spiro (eds.): *Schooling and the Acquisition of Knowledge*. New Jersey: L. Erlbaum.
- COLLINS, A. & QUILLIAN, M. K. (1969) Retrieval Time from Semantic Memory. *Journal of Verbal Learning and Verbal Behavior*, 8, 240-248.
- DEWITZ, P., CARR, E. M. & PATBERG, J. P. (1987) Effects of Inference Training on Comprehension and Comprehension Monitoring. *Reading Research Quarterly*, 22, 99-121.
- Van DIJK, T. A. & KINTSCH, W. (1983) *Strategies of Discourse Comprehension*. New York: Academic Press.
- FRANKS, J. J., VYE, N. J., AUBLE, P. M., MEZYNSKI, K. J., PERFETTO, G. A., BRANSFORD, J. D., STEIN, B. S. & LITTLEFIELD, J. (1982) Learning From Explicit Versus Implicit Texts. *Journal of Experimental Psychology: General*, 111, 414-422.
- HANSEN, J. & PEARSON, P. D. (1983) An Instructional Study: Improving the Inferential Comprehension of Good and Poor Fourth-Grade Readers. *Journal of Educational Psychology*, 75, 821-829.
- KINTSCH, W. (1976) Memory for Prose. In C. Cofer (ed.): *The Structure of Human Memory*. San Francisco: W. H. Freeman.
- LAURINEN, L. I. (1984) Asiatekstin merkityssuhteiden analyysi. Semantic Analysis of Expository Texts. In K. Sajavaara, J. Tormala & M. Leino (eds.): *Psycholinguistic Papers IV*. AFInLA.
- LAURINEN, L. I. (1985) Sentence Elaboration and Language Understanding, *General Psychology Monographs, No. B 6*. University of Helsinki: Department of General Psychology.

LAURINEN, L. I. & KAUPPINEN, A. (1986) Merkityssuhteet lukemisen ja kirjoittamisen apuna. Meaning Relations as Aids in Reading and Writing. In L. Lautamatti & S. Takala (eds.): *AFinLA Yearbook* 1986.

MALONE, T. W. (1981) Toward a Theory of Intrinsically Motivating Instruction. *Cognitive Science*, 4, 333-369.

NORMAN, D. A., RUMELHART, D. E. & LNR Research Group (1975) Explorations in Cognition. San Francisco: W. H. Freeman.

RUMELHART, D. E. (1975) Notes on a Schema for Stories. In D. G. Bobrow & A. Collins (eds.): *Representation and Understanding*. New York: Academic Press.

SCHANK, R. C. (1982) Dynamic Memory. Cambridge, Mass.: Gambridge University Press.

SCHANK, R. C. & ABELSON, R. P. (1977) Scripts, Plans, Goals, and Understanding. Hillsdale, N. J: L. Erlbaum.

TAYLOR, B. M. (1982) Text Structure and Children's Comprehension and Memory for Expository Material. *Journal of Educational Psychology*, 74, 323-340.